

110TH CONGRESS  
1ST SESSION

# H. R. 4174

To establish an interagency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration.

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## IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 14, 2007

Mr. ALLEN (for himself, Mr. INSLEE, Mr. GILCHREST, Mr. BAIRD, Mr. EHLERS, Ms. BORDALLO, Mr. HOLT, Mr. OLVER, Mr. DELAHUNT, Mr. KLEIN of Florida, Mr. RUPPERSBERGER, and Mrs. CHRISTENSEN) introduced the following bill; which was referred to the Committee on Science and Technology

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## A BILL

To establish an interagency committee to develop an ocean acidification research and monitoring plan and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

### 3   **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4       (a) SHORT TITLE.—This Act may be cited as the  
5       “Federal Ocean Acidification Research And Monitoring  
6       Act of 2007” or the “FOARAM Act”.

1 (b) TABLE OF CONTENTS.—The table of contents for  
 2 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings and purposes.
- Sec. 3. Interagency Committee on Ocean Acidification.
- Sec. 4. Strategic research and implementation plan.
- Sec. 5. NOAA ocean acidification program.
- Sec. 6. Definitions.
- Sec. 7. Authorization of appropriations.

3 **SEC. 2. FINDINGS AND PURPOSES.**

4 (a) FINDINGS.—The Congress finds the following:

5 (1) The oceans help mitigate the effects of glob-  
 6 al warming by absorbing atmospheric carbon diox-  
 7 ide. About a third of anthropogenic carbon dioxide  
 8 is currently absorbed by the ocean.

9 (2) The rapid increase in atmospheric carbon  
 10 dioxide due to human induced carbon dioxide emis-  
 11 sions is overwhelming the natural ability of the  
 12 oceans to cope with this increase.

13 (3) The emission of carbon dioxide into the at-  
 14 mosphere is changing surface ocean carbon chem-  
 15 istry and lowering the pH. These changes in ocean  
 16 chemistry are detrimental to organisms including  
 17 corals, which support one of the richest habitats on  
 18 Earth, marine shells, and many other organisms  
 19 that form the base of the food chain for many fish  
 20 and marine mammals.

21 (4) The rich biodiversity of marine organisms is  
 22 an important contribution to the national economy

1 and the change in ocean chemistry threatens tour-  
2 ism, our fisheries, and marine environmental quality,  
3 and could result in significant social and economic  
4 costs.

5 (5) Existing Federal programs support research  
6 in related ocean chemistry, but gaps in funding, co-  
7 ordination, and outreach have impeded national  
8 progress in addressing ocean acidification.

9 (6) National investment in a coordinated pro-  
10 gram of research and monitoring would improve the  
11 understanding of ocean acidification effects on whole  
12 ecosystems, advance our knowledge of the socio-  
13 economic impacts of increased ocean acidification,  
14 and strengthen the ability of marine resource man-  
15 agers to assess and prepare for the harmful impacts  
16 of ocean acidification on our marine resources.

17 (b) PURPOSES.—The purposes of this Act are to pro-  
18 vide for—

19 (1) development and coordination of a com-  
20 prehensive interagency plan to monitor and conduct  
21 research on the processes and consequences of ocean  
22 acidification on marine organisms and ecosystems  
23 and to establish an ocean acidification program  
24 within the National Oceanic and Atmospheric Ad-  
25 ministration;

1           (2) assessment and consideration of regional  
2           and national ecosystem and socioeconomic impacts  
3           of increased ocean acidification, and integration into  
4           marine resource decisions; and

5           (3) research on adaptation strategies and tech-  
6           niques for effectively conserving marine ecosystems  
7           as they cope with increased ocean acidification.

8   **SEC. 3. INTERAGENCY COMMITTEE ON OCEAN ACIDIFICA-**  
9                           **TION.**

10       (a) ESTABLISHMENT.—

11           (1) IN GENERAL.—There is hereby established  
12           an Interagency Committee on Ocean Acidification.

13           (2) MEMBERSHIP.—The Committee shall be  
14           comprised of senior representatives from the Na-  
15           tional Oceanic and Atmospheric Administration, the  
16           National Science Foundation, the National Aero-  
17           nautics and Space Administration, the United States  
18           Geological Survey, the United States Fish and Wild-  
19           life Service, the Environmental Protection Agency,  
20           the Department of Energy, and such other Federal  
21           agencies as the Secretary considers appropriate.

22           (3) CHAIRMAN.—The Committee shall be  
23           chaired by the representative from the National Oce-  
24           anic and Atmospheric Administration. The chairman  
25           may create subcommittees chaired by any member

1 agency of the committee. Working groups may be  
2 formed by the full Committee to address issues that  
3 may require more specialized expertise than is pro-  
4 vided by existing subcommittees, or to receive advice,  
5 input, or comments from the academic community  
6 and other relevant stakeholders.

7 (b) PURPOSE.—The Committee shall oversee the  
8 planning, establishment, and coordination of a plan de-  
9 signed to improve the understanding of the role of in-  
10 creased ocean acidification on marine ecosystems and to  
11 identify and develop through research adaptation strate-  
12 gies and techniques to effectively conserve marine eco-  
13 systems as they cope with increased ocean acidification.

14 (c) REPORTS TO CONGRESS.—

15 (1) STRATEGIC RESEARCH AND IMPLEMENTA-  
16 TION PLAN.—The Committee shall submit the stra-  
17 tegic research and implementation plan established  
18 under section 4 to the Committee on Commerce,  
19 Science, and Transportation of the Senate and the  
20 Committee on Science and Technology of the House  
21 of Representatives not later than 18 months after  
22 the date of enactment of this Act.

23 (2) TRIENNIAL REPORT.—Not later than 2  
24 years after the date of the enactment of this Act and  
25 every 3 years thereafter, the Committee shall trans-

1       mit a report to the Committee on Commerce,  
2       Science, and Transportation of the Senate and the  
3       Committee on Science and Technology of the House  
4       of Representatives that includes—

5               (A) a summary of federally funded ocean  
6               acidification research and monitoring activities,  
7               including the budget for each of these activities;  
8               and

9               (B) an analysis of the progress made to-  
10              ward achieving the goals and priorities for the  
11              interagency research plan developed by the  
12              Committee under section 4 and recommenda-  
13              tions for future activities, including policy rec-  
14              ommendations developed as part of this re-  
15              search.

16 **SEC. 4. STRATEGIC RESEARCH AND IMPLEMENTATION**  
17 **PLAN.**

18       (a) IN GENERAL.—Within 18 months after the date  
19 of enactment of this Act, the Committee shall develop a  
20 strategic research and implementation plan for coordi-  
21 nated Federal activities. In developing the plan, the Com-  
22 mittee shall consider and use reports and studies con-  
23 ducted by Federal agencies and departments, the National  
24 Research Council, the Ocean Research and Resources Ad-  
25 visory Panel, the Joint Subcommittee on Ocean, Science,

1 and Technology and the Climate Change Science Program  
2 of the National Science and Technology Council, the Joint  
3 Ocean Commission Initiative, and other expert scientific  
4 bodies.

5 (b) SCOPE.—The plan shall—

6 (1) provide for interdisciplinary research among  
7 the ocean sciences, and coordinated research and ac-  
8 tivities to improve understanding of ocean acidifica-  
9 tion that will affect marine ecosystems and to assess  
10 the potential and realized socioeconomic impact of  
11 ocean acidification, including—

12 (A) effects of atmospheric carbon dioxide  
13 on ocean chemistry;

14 (B) biological impacts of ocean acidifica-  
15 tion, including research on—

16 (i) commercially and recreationally  
17 important species;

18 (ii) protected or endangered or threat-  
19 ened species;

20 (iii) ecologically important calcifiers  
21 that lie at the base of the food chain; and

22 (iv) physiological consequences of  
23 ocean acidification for ocean-dwelling orga-  
24 nisms;

1 (C) identification and assessment of eco-  
2 systems most at risk from projected changes in  
3 ocean chemistry including—

4 (i) coastal ecosystems, including coral  
5 reef ecosystems;

6 (ii) deep sea coral ecosystems; and

7 (iii) polar and subpolar ecosystems;

8 (D) modeling the effects of changing car-  
9 bon system chemistry, including ecosystem fore-  
10 casting;

11 (E) identifying feedback mechanisms re-  
12 sulting from ocean chemistry changes and de-  
13 creases in calcification rates of organisms;

14 (F) socioeconomic impacts of ocean acidifi-  
15 cation; and

16 (G) identifying interactions between ocean  
17 acidification and other oceanic changes associ-  
18 ated with climate change, including changes in  
19 sea temperature, ocean circulation, terrestrial  
20 runoff, and other changes;

21 (2) establish, for the 10-year period beginning  
22 in the year it is submitted, goals, priorities, and  
23 guidelines for coordinated research activities that  
24 will—



1 (A) most effectively advance scientific un-  
2 derstanding of the characteristics and impacts  
3 of ocean acidification;

4 (B) provide forecasts of ocean acidification  
5 and the consequent impacts on marine eco-  
6 systems; and

7 (C) provide research that could serve as a  
8 basis for policy decisions to reduce and manage  
9 ocean acidification and its environmental im-  
10 pacts;

11 (3) provide an estimate of Federal funding re-  
12 quirements for research and monitoring activities;  
13 and

14 (4) identify and strengthen relevant programs  
15 and activities of the Federal agencies and depart-  
16 ments that would contribute to accomplishing the  
17 goals of the plan and prevent unnecessary duplica-  
18 tion of efforts, including making recommendations  
19 for the use of observing systems and technological  
20 research and development.

21 **SEC. 5. NOAA OCEAN ACIDIFICATION PROGRAM.**

22 (a) IN GENERAL.—The Secretary shall establish and  
23 maintain an ocean acidification program within the Na-  
24 tional Oceanic and Atmospheric Administration to imple-  
25 ment activities consistent with the strategic research and

1 implementation plan developed by the Committee under  
2 section 4 that—

3 (1) includes—

4 (A) interdisciplinary research among the  
5 ocean and atmospheric sciences, and coordi-  
6 nated research and activities to improve under-  
7 standing of ocean acidification;

8 (B) the establishment of a long-term moni-  
9 toring program of ocean acidification utilizing  
10 existing global and national ocean observing as-  
11 sets, and adding instrumentation and sampling  
12 stations as appropriate to the aims of the re-  
13 search program;

14 (C) research to identify and develop adap-  
15 tation strategies and techniques for effectively  
16 conserving marine ecosystems as they cope with  
17 increased ocean acidification;

18 (D) as an integral part of the research  
19 programs described in this Act, educational op-  
20 portunities that encourage an interdisciplinary  
21 and international approach to exploring the im-  
22 pacts of ocean acidification;

23 (E) as an integral part of the research pro-  
24 grams described in this Act, national public  
25 outreach activities to improve the under-

1 standing of current scientific knowledge of  
2 ocean acidification and its impacts on marine  
3 resources; and

4 (F) coordination of ocean acidification  
5 monitoring and impacts research with other ap-  
6 propriate international ocean science bodies  
7 such as the International Oceanographic Com-  
8 mission, the International Council for the Ex-  
9 ploration of the Sea, the North Pacific Marine  
10 Science Organization, and others;

11 (2) provides grants for critical research projects  
12 that explore the effects of ocean acidification on eco-  
13 systems and the socioeconomic impacts of increased  
14 ocean acidification that are relevant to the goals and  
15 priorities of the strategic research plan; and

16 (3) incorporates a competitive merit-based  
17 grant process that may be conducted jointly with  
18 other participating agencies or under the National  
19 Oceanographic Partnership Program under section  
20 7901 of title 10, United States Code.

21 (b) ADDITIONAL AUTHORITY.—In conducting the  
22 Program, the Secretary may enter into and perform such  
23 contracts, leases, grants, or cooperative agreements as  
24 may be necessary to carry out the purposes of this Act  
25 on such terms as the Secretary deems appropriate.

1 **SEC. 6. DEFINITIONS.**

2 In this Act:

3 (1) COMMITTEE.—The term “Committee”  
4 means the Interagency Committee on Ocean Acidifi-  
5 cation established by section 3(a).

6 (2) OCEAN ACIDIFICATION.—The term “ocean  
7 acidification” means the decrease in pH of the  
8 Earth’s oceans caused by chemical inputs from the  
9 atmosphere, including anthropogenic carbon dioxide.

10 (3) PROGRAM.—The term “Program” means  
11 the National Oceanic and Atmospheric Administra-  
12 tion Ocean Acidification Program established under  
13 section 5.

14 (4) SECRETARY.—The term “Secretary” means  
15 the Secretary of Commerce, acting through the Ad-  
16 ministrator of the National Oceanic and Atmos-  
17 pheric Administration.

18 **SEC. 7. AUTHORIZATION OF APPROPRIATIONS.**

19 (a) IN GENERAL.—There are authorized to be appro-  
20 priated to the National Oceanic and Atmospheric Adminis-  
21 tration to carry out the purposes of this Act—

22 (1) \$6,000,000 for fiscal year 2009;

23 (2) \$8,000,000 for fiscal year 2010;

24 (3) \$11,000,000 for fiscal year 2011; and

25 (4) \$30,000,000 for fiscal year 2012 and each  
26 fiscal year thereafter.

1 (b) ALLOCATION.—

2 (1) Of the amounts made available to carry out  
3 this Act for a fiscal year, the Secretary shall allocate  
4 at least 60 percent to other departments and agen-  
5 cies to carry out the priorities of the plan developed  
6 by the Committee.

7 (2) Of the amounts made available to carry out  
8 this Act for any fiscal year, the Secretary, and other  
9 departments and agencies to which amounts are al-  
10 located under paragraph (1), shall allocate at least  
11 50 percent for competitive grants.

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